# NEWSLETTER

DIGNAN PHOTOGRAPHIC INC., 12304 ERWIN ST., NO. HOLLYWOOD, CALIF. 91606

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PROCESSING GEVACHROME FILMS

PROCESSING INSTRUCTIONS FOR AGFACHROME FILMS

SELECTIVE BLEACH FORMULAS FOR AGFACHROME

PROCESSING TRI-X & PLUS-X IN RODINOL

We have been working on simplifying the compounding of Black & White and color solutions. As time goes on we will eliminate approximately 25 of the chemicals now used in the various formulas we have published. They will also be eliminated from our catalog. To you, this means that with a stock of about 50 different chemicals you will be able to process almost any type of black & white or color film manufactured now or in the future, with the exception of a Kodachrome type emulsion.

Around the middle of September we will mail you a booklet that is long overdue, "How to Process the Worlds Color Emulsions". We had hoped to offer still further simplifications for the One-Shot formulas for the Dignan Color Print Paper. This project will have to be postponed for another month or so.

In the August issue we are going to attempt something just a little different. We are going to offer a pot-pourri of letters and information sent to us in the last year by you the subscriber. It is hoped that it will not only answer a few questions, but that it will succeed in moving many of you to help us supply answers that many of you possess. We have tried to make the Newsletter a two-way street. If you know of a short cut or have discovered something that has helped you in the darkroom, why not let us all in on it.

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## PROCESSING GEVACHROME FILMS IN PROCESS 6N1

Ed Notes: You may wonder why we have been running the Official Gevachrome formulas (starting on page V-422). As we understand it, when Agfa and Geva merged, the Agfa label was to appear on their line of products for the amateur. Geva was to be reserved for the professional line. Because all photographic manufacturers attempt to simplify their packaging chemistry, we think you will find that most of the Gevachrome formulas can be used to process the Agfa emulsions, so we confidently suggest experimentally processing Agfachrome in these Gevachrome solutions. All of the formulas for 6N1 and 6N2 will be found in the April 1970 issue, except for the First Developer and Stop Bath, which are Unofficial formulas taken from Page 10 of our booklet on Agfachrome.

6N1 and 6N2 are code names similar to E-2 and E-3. Many of the individual formulas do not change from one system to another. If the Gevachrome formulas are used to process Agfachrome, the pre-bath and sound track formulas can, of course, be skipped.

### UNOFFICIAL FIRST DEVELOPER FOR AGFACHROME 6N1

| | | Dignan's Catalog No. |
|---|---|---|
| Water | 800.0 cc | |
| Metol | 2.0 grams | (DD-4) |
| Sodium Sulfite (anh.) | 25.0 grams | (S790) |
| Hydroquinone | 4.0 grams | (DD-14) |
| Sodium Carbonate (mono.) | 30.0 grams | (S500) |
| Potassium Thiocyanate | 2.0 grams | (P690) |
| Potassium Bromide | 2.0 grams | (P530) |
| 6-Nitrobenzimidazole Nitrate 0.2% solution | 15.0 cc | (N310) |

(to make 0.2% solution, add 2.0 grams to 1000 cc of water)

### UNOFFICIAL STOP BATH FOR AGFACHROME 6N1

| | | |
|---|---|---|
| Water | 800.0 cc | |
| Acetic Acid (glacial) | 10.0 cc | (not carried) |
| Water to make | 1.0 liter | |

# PROCESSING GEVACHROME FILMS IN PROCESS 6N1

## GEVACHROME PROCESS 6N1

The processing procedures described in this bulletin may be used for Gevachrome Original Type 6.00 and Type 6.05 and Gevachrome Print Film Type 9.02 at a temperature of 73°f.

## DEVELOPER TIMES

Specific developer times are given below for each type of film.

Gevachrome Original Normal Speed Type 6.00

| | | |
|---|---|---|
| First Developer | | |
| Normal Process | Exposure Index 50 | 3½ minutes |
| Chrome Developer | | |
| Normal Process | Exposure Index 50 | 7 minutes |

Gevachrome Original High Speed Type 6.05

| | | |
|---|---|---|
| First Developer | | |
| Normal Process | Exposure Index 125 | 3½ minutes |
| Pushed 1 stop | Exposure Index 250 | 4¼ minutes |
| Chrome Developer | | |
| Normal Process | Exposure Index 125 | 7 minutes |
| Pushed 1 stop | Exposure Index 250 | 6 minutes |

Gevachrome Print Film Type 9.02

| | |
|---|---|
| First Developer | 2½ minutes |
| Chrome Developer | *3-6 minutes |

*Depending on the contrast desired.

## MASKING BLEACH

Gevachrome Masked Films, to be marketed at a later date, require a masking bleach. It is, therefore, recommended that an additional tank be allotted for this step. Gevachrome Original Type 6.00 and Type 6.05 and Gevachrome Print Film Type 9.02 DO NOT require this masking bleach.

## REPLENISHMENT

The proper replenishment rates should be determined by chemical analysis and photographic tests.

The tank solution should be used for the replenisher in all the secondary solutions. The developer will call for more developing agent and less bromide. The results of the chemical analysis will dictate the modifications to be made.

# PROCESSING GEVACHROME FILMS IN PROCESS 6N1

PROCESSING SEQUENCE AT 73°F WITH WASHES AT 70°F.

| STEP | TANK SOLUTION | TIME |
|---|---|---|
| 1. Pre-Bath | 6N1 & 6N2 Pre-Bath | 10 sec. |
| 2. Spray Rinse & Backing Removal | | 10 sec. |
| 3. First Developer | 6N1 First Developer (Unofficial) | 2-5 min. |
| 4. Stop Bath | 6N1 Stop Bath (Unofficial) | 2 min. |
| 5. Wash | | 1 min. |
| 6. Re-Exposure | | |
| 7. Sound Track Application | Sound Track Fixer for silver sound track | 30 sec pre-dry<br>25 sec fixing time |
| | Sound Track Sulphiding Solution for Sulphide Sound Track | 30 sec pre-dry<br>30 sec sulphiding |
| 8. Wash | | 1 min. |
| 9. Chrome Developer | 6N1 Chrome Developer | 3-7 min. |
| 10. Spray rinse | | 10 sec. |
| 11. First Fixer | 6N1 & 6N2 | 2 min. |
| 12. Spray Wash | | 1 min. |
| 13. *Masking Bleach | 6N1 Masking Bleach | 3 min. |
| 14. Bleach | 6N1 & 6N2 Bleach | 3 min. |
| 15. Spray Wash | | 2 min. |
| 16. Sound Track Redevelopment | Sound Track Developer for silver sound track | 30 sec pre-dry<br>30 sec development |
| 17. Spray Wash | | 1 min. |
| 18. Second Fixer | 6N1 & 6N2 Fixer | 2 min. |
| 19. Spray Wash | | 3 min. |
| 20. Stabilizer | 6N1 & 6N2 Stabilizer | 10 sec. |

*Will be required only for masked material to be marketed at a later date.

# PROCESSING INSTRUCTIONS FOR AGFACHROME FILM, DAYLIGHT AND TUNGSTEN

## PROCESSING CHEMICALS

Processing chemicals for Agfachrome film are available in complete sets of 1 liter (34 oz.), 1 gal. and 3½ gal., and in separate units of 1 gal., 3½ gal., and replenishers for first and color developers in 5 gal.

A complete set consists of the following parts:

| | |
|---|---|
| First Developer | (CU I) |
| Stop | (CU II) |
| Color Developer | (CU III) |
| Bleach | (CU V) |
| Fixer | (CU VI) |

Replenishers for stop, bleach and fixer are prepared by dissolving the chemicals in two-third's the volume of water used for preparing the working solutions.

## SOLUTION STORAGE LIFE

| | Full, tightly stoppered glass bottles | Tanks w/floating lids |
|---|---|---|
| First and Color Developer, unused | 4 weeks | 1 week |
| First and Color Developer, partially used | 2 weeks | 1 week |
| Other solutions | 8 weeks | 8 weeks |
| First and Color Developer Replenishers | 4 weeks | 1 week |

## PROCESSING WITHOUT REPLENISHMENT

Without replenishment, the processing capacity per one gallon of first and color developer is 1900 sq. in. of film (24 sheets 8x10 in., 95 sheets 4x5 in., or, 24 rolls 120). In 3½ gallons, (84 sheets 8x10 in., or 336 sheets 4x5 in., or 84 rolls 120). Twice this amount can be processed in the secondary solutions.

Use the Time Compensation Chart, (illustration #1), for the First Developer to compensate for increasing exhaustion in an unreplenished system. (The color developer does not require an increase in processing time with increased exhaustion).

### Film Processing Record

The following chart is a sample of how to record the square inches processed and to determine first development time of the next batch in an unreplenished system:

(Continued)

ILLUSTRATION #1

TIME COMPENSATION CHART
FIRST DEVELOPER

| First Developer Time (Min.)* | Square Inches Processed 1 Gallon | Square Inches Processed 3½ Gallons | Approx. Conversion into Number of Sheets 1 Gallon 4x5 | 1 Gallon 8x10 | 3½ Gallons 4x5 | 3½ Gallons 8x10 |
|---|---|---|---|---|---|---|
| 13 | 0-380 | 0-1320 | 0-19 | 0-5 | 0-66 | 0-16 |
| 13½ | 381-760 | 1321-2640 | 20-38 | 6-10 | 67-132 | 17-33 |
| 14 | 761-1140 | 2641-3960 | 39-57 | 11-15 | 133-198 | 34-49 |
| 14½ | 1141-1520 | 3961-5280 | 58-76 | 16-19 | 199-198 | 50-66 |
| 15 | 1521-1900 | 5281-6600 | 77-95 | 20-24 | 265-330 | 67-84 |

* 1. These time compensations are based on a one-week's use of the first developer in a tank with a floating cover. The first developer and the color developer should be discarded after one week regardless of any unused capacity.

2. An additional time allowance in the first developer of about 15 sec. per day should be given for its' aging.

Film Processing Record, Cont'd

| DATE | NUMBER & SIZE OF FILM PER BATCH | SQUARE INCH OF BATCH | SQUARE INCH PROCESSED | MINUTES 1ST DEV. |
|---|---|---|---|---|
| | 8x10 | | | |
| | 5x7 | | | |
| | 4x5 | | | |
| | Control Strip | | | |
| | 8x10 | | | |
| | 5x7 | | | |
| | 4x5 | | | |
| | Control Strip | | | |

Square inches per one sheet of film:

(1) 11x14 = 154sq.in.
(1) 8x10 = 80sq.in.
(1) 5x7 = 35sq.in.
(1) 4x5 = 20sq.in.
(1) Control Strip = 10sq.in.

(1) 120 roll = 80 sq.in.
(1) 35mm-36exp. roll = 80 sq.in.
(1) 35mm-20exp. roll = 50 sq.in.

## PROCESSING WITH REPLENISHMENT

Replenishment is recommended because it improves the control of color balance and speed, increases the working capacity of the solutions, and maintains their activity at a constant level. In order to monitor the quality of a replenished line, it is advisable to use control strips with every run, and plot the readings graphically (see section on densitometry).

| Film Size | First Developer Replenisher RCU I | Color Developer Replenisher RCU III | Other Solutions (chemicals diluted in 2/3 water) |
|---|---|---|---|
| 11x14 in. | 330cc | 290cc | 195cc |
| 8x10 in. | 172 | 150 | 100 |
| 5x7 in. | 74 | 65 | 45 |
| 4x5 in. | 42 | 35 | 23 |
| 120 | 172 | 150 | 100 |
| 35mmx36exp.* | 100 | 100 | 65 |
| 35mmx20exp.* | 65 | 65 | 45 |

* Use these rates also for Agfachrome Duplicating Film.

Replenishment Techniques (follow with care)

1. Remove a larger amount of solution from processing tanks than is to be replenished and set it aside.
2. Add the required amount of replenisher to the tank solution.
3. Fill tank solution to level with solution held aside and stir.
4. Discard remaining solution.

This technique will insure that solution level in the first developer will not drop because of carry-out; it will also maintain the levels in the other tanks and prevent dilution of the chemical concentration by water carry-over.

Compensation for Aging

Add 19cc of first developer replenisher per 1000cc tank solution for each 24-hour day since the processing line was last used. For example, in a 3½ gallon line (13.2 liters), add 250cc for each day, or, for a week-end (Saturday and Sunday), add 500cc. The color developer does not require a replenishment for aging. However, if the developers have not been used for longer than one week, replace both first and color developers with fresh solutions. These rates are guides only, and will vary somewhat with each individual system. They should, therefore, be verified with sensitometric control strips.

## Replenishment Chemicals

For replenishment of first and color developers, special replenishers are required which are available as:

Replenisher for first developer (RCU I) 5 gal. size

Replenisher for color developer (RCU III) 5 gal. size

For replenishment of stop bath, bleach and fixer, dissolve the chemicals used for tank solutions in only 2/3 the amount of water; i.e. 1 gal. size in 2530cc water; 3½ gallon size in 8800cc water.

Replenisher for the stabilizer is the same strength as the working solutions. To make up the stabilizer, use 2cc wetting agent*, and 15cc formaldehyde 37% per 1000cc water.

*Wetting agents which may be used are:

Wettinol
Agepon
Pako-Wet
Photo-Flo

## Storage Life of Replenishers

The replenishers have the same storage life as unused working solutions:

| | Full, tightly stoppered glass bottles | Tanks w/floating lids |
|---|---|---|
| First & Color Developer Replenisher | 4 weeks | 1 week |
| Replenisher for stop, bleach, fix & stabilizer | 8 weeks | 8 weeks |

## DENSITOMETRIC CONTROL

Agfachrome CT-18 processing control strips are available in packages containing 25 pre-exposed strips and one factory processed master wedge. Special control strip holders are available from Agfa-Gevaert district offices. The control strips have 21 steps. Four of these steps are used for process control, they are as follows:

1. Stain level - indicates quality of white in finished transparencies. Only visual comparison to master wedge is necessary.
2. The step which is 3 steps toward the D-Min. from the heavy center line of the wedge, and is outlined by two dark lines (see Illustration #2) is called the mid-step. This step is plotted graphically in comparison with the master wedge.
3. The step which is 3 steps toward the D-Max. from the heavy center line of the wedge, and is outlined by two dark lines (see Illustration #2) is called the shoulder step. This step is of primary importance when evaluating the speed of your process, and should also be plotted graphically.

(Continued)

DENSITOMETRIC CONTROL, Cont'd

4. D-Max. - The area of maximum density needs to be checked for magenta layer deviation from the master wedge only.

When using a densitometer, the cyan layer is read through red filter, yellow layer is read through blue filter, magenta layer is read through green filter.

Tolerances for Densitometry

Stain Level: +.05 maximum deviation from master in all 3 colors.

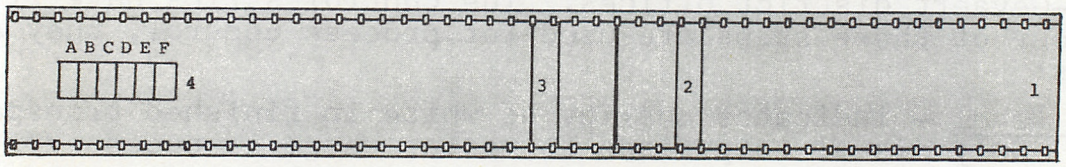
Mid-Step:
(A) Density ±.10 from the master.
(B) Color balance - the deviation of the 3 layers from standard should not differ by more than .05, i.e. the spread of any of the colors on the graph should not exceed .05.

Shoulder Step:
(A) Density ± .20 from the master.
(B) Color Balance - the deviation of the 3 layers from standard should not differ by more than .10, i.e. the spread of any of the colors on the graph should not exceed .10.

Maximum Density:
A maximum deviation of -.20 from the master. The magenta layer is the most important one in this area.

ILLUSTRATION #2

AGFACHROME PROCESS CONTROL WEDGE




A - Cyan color patch
B - Magenta color patch
C - Yellow color patch
D - Red color patch
E - Green color patch
F - Blue color patch

1 - Fog (D-Min.)
2 - Mid-Step
3 - Shoulder Step
4 - D-Max.

## Evaluation

Following is a listing of the different types of information to be obtained from a processed control wedge in the order of importance:

I. Speed: Determined by deviation of magenta layer from master wedge in shoulder step.

| A deviation of the magenta density compared to the master in the shoulder step of: | ..shows.. | speed deviation as follows |
|---|---|---|
| -.60 | | + 1 stop |
| -.40 | | +2/3 stop |
| -.20 | | +1/3 stop |
| 0 | | Normal |
| +.20 | | -1/3 stop |
| +.40 | | -2/3 stop |
| +.60 | | - 1 stop |

To correct for off-standard speed, the following adjustments of first developer time will correct speed to standard when the magenta density is as follows:

| Density | Fresh Developer Time Adjustment Temp. @75°f |
|---|---|
| -.60 | -2 minutes |
| -.40 | -80 seconds |
| -.20 | -40 seconds |
| 0 | |
| +.20 | +1 minute |
| +.40 | +2 minutes |
| +.60 | +3 minutes |

II. Density and color balance of mid-step: These parameters should fall within recommended tolerances if agitation, time, and temperatures are correct.

III. Magenta D-Max.: A low reading may indicate an under-replenished color developer. When a low reading is accompanied by an increase of density in the mid-step, a correction can be brought about by shorter nitrogen burst intervals, or, increased hand agitation in the first developer.

IV. Stain Level: A light yellow stain may occur when a new processing line is started. This condition may be due to chemical contamination from hard rubber or plastic tanks. Infrequently, this will occur with stainless steel tanks. After the process has been used for a while, the stain should disappear.

A heavy yellow stain may also result from too long a rinse (over 20 seconds) following the first developer.

A magenta stain indicates insufficient wash following color developer.

## CHEMICAL CONTROL OF PROCESSING LINE

As long as the control strips stay within tolerance, the indications are that the chemical solutions are in good working condition. However, regular readings of pH values and specific gravity of the processing solutions are further means of process control.

| Processing Solution | pH Value | Specific Gravity |
|---|---|---|
| First Developer | 10.1 - 10.3 | non-indicative |
| Stop Bath | 5.0 - 5.4 | 1.016 - 1.008 |
| Color Developer | 11.6 - 11.8 | non-indicative |
| Bleach | 5.0 - 5.4 | 1.078 - 1.040 |
| Fixer | 6.5 - 8.5 | 1.090 - 1.045 |
| Stabilizer | not below 6.5 | non-indicative |

## AGITATION

Nitrogen Burst: Burst cycle 20 seconds

Duration 1.2 seconds

Pressure to be sufficient to raise the solution level a minimum of 1/2 inch.

Upon initial insertion of hangers in first developer, tap them sharply against the tank to dislodge air bubbles.

Should any hanger marks, streaks, or reel marks be visible, increase nitrogen pressure. Burst agitation is also required in the wash steps and should also be sufficient to raise the wash water level by at least 1/2 inch.

Manual Agitation: Upon initial insertion of hangers in first developer, tap them sharply against the tank to dislodge air bubbles.

Remove film every 10 seconds during the first minute in each solution, thereafter, every 30 seconds. Agitation is also required in the wash step.

## WASHING

The wash water flow rate should be sufficient to completely replace the tank volume once a minute. This requires a flow rate of 3½ gallons per minute for a 3½ gallon tank; 5 gallons per minute for a 5 gallon tank, etc. Since wash steps are as important as processing steps, please follow the instructions carefully in the section, "Summary of Agfachrome Processing."

# TIME-TEMPERATURE CHARTS FOR AGFACHROME

## TIME-TEMPERATURE PROCESSING CHART - 68°F

| Processing Steps | Temp. (F) | Time |
|---|---|---|
| First Developer | 68 | 20 min. |
| Rinse | 64-80 | 10 sec. |
| Stop | 68 | 4 min. |
| Wash | 64-80 | 10 min. |
| Re-exposure 30 sec. each side | | |
| Color Developer | 68 | 14 min. |
| Wash | 64-80 | 20 min. |
| Bleach | 68 | 5 min. |
| Wash | 64-80 | 5 min. |
| Fix | 68 | 5 min. |
| Wash | 64-80 | 10 min. |
| Stabilizer | 68 | 1 min. |

## TIME-TEMPERATURE PROCESSING CHART - 72°F

| Processing Steps | Time |
|---|---|
| First Development | 16 min. |
| Rinse | 10 sec. |
| Stop | 3½ min. |
| Wash | 8½ min. |
| Re-exposure 30 sec. each side | |
| Color Developer | 12 min. |
| Wash | 20 min. |
| Bleach | 4½ min. |
| Wash | 4½ min. |
| Fix | 4½ min. |
| Wash | 8½ min. |
| Stabilizer | 1 min. |

## TIME-TEMPERATURE PROCESSING CHART - 75°F

| Processing Steps | Temp. (F) | Time |
|---|---|---|
| (In Total Darkness) | | |
| First Development | 75 | 13 min. |
| Rinse | 73-77 | 10 sec. |
| Stop | 73-77 | 3 min. |
| (In Room Light) | | |
| Wash | 73-77 | 7 min. |
| Re-exposure 30 sec. each side | | |
| Color Development | 75 | 11 min. |
| Wash | 73-77 | 20 min. |
| Bleach | 73-77 | 4 min. |
| Wash | 73-77 | 4 min. |
| Fix | 73-77 | 4 min. |
| Final Wash | 73-77 | 7 min. |
| Stabilizer | 73-77 | 1 min. |
| Drying | 115 | |

## TEMPERATURE

The first developer temperature is most critical because of its' effect on the density of processed films. For consistent results, the processing temperature of the first developer should always be exactly the same; i.e. 75°f. As an example, a deviation of -½F produces a density shift of about +0.15, while +½F produces -.10 in the magenta density reading in the shoulder step of the control strip.

The temperatures of the other solutions are not as critical, and the tolerances given can readily be adhered to.

## PROCESSING VARIATIONS

Instructions for gaining or losing speed by changing first development time:

| +<br>-f/stop change | change of first<br>dev. time at 75°f | density change<br>of control strip* |
|---|---|---|
| Plus 1 stop | plus 3 min. | -.60 |
| plus 2/3 stop | plus 2 min. | -.40 |
| plus 1/3 stop | plus 1 min. | -.20 |
| Normal | None | 0 |
| minus ½ stop | minus 1 min. | +.30 |
| minus 1 stop | minus 2 min. | +.60 |

*Reading of shoulder step through green filter of densitometer.

Instructions for changing contrast: If a decrease in contrast is desired, reduce first developing time by 2 min. (75°f), and increase exposure by one f stop. A color shift of about cc05M will occur, however, no cross-over will take place. A further reduction in contrast can be obtained by reducing the color developing time to 7 min. (75°f).

## ANTI-FADING TREATMENT

If Agfachrome transparencies are to be used for illuminated displays, the following procedures should be followed:

1. In the final wash, dump the wash water three times, or, use three different wash tanks in order to completely remove the hypo.
2. Use formaldehyde stabilizer as recommended.
3. After transparencies have been dried, treat them in clear Agfacolor anti-fading lacquer.
4. If possible, the interior of the display case, as well as the bulbs and interior facing of the diffusion sheet on which the transparency is mounted, should be treated with the same anti-fading lacquer.

# BLEACH FORMULAS FOR AGFACHROME PROFESSIONAL FILMS

## YELLOW BLEACH

| | | Dignan's Catalog No. |
|---|---|---|
| Water | 750.0 cc | |
| Cholic Acid | 20.0 grams | not carried |
| Sodium Carbonate, mono. | 50.0 grams | (S500) |
| Calgon | 1.0 gram | (C150) |
| Water to make | 1.0 liter | |

Pre-soak transparencies 1-2 minutes in water before treatment. Treat for approximately 2-8 minutes at 75°f until desired reduction is achieved; wash for 10 minutes in running water before drying.

## MAGENTA BLEACH

### Solution I

| | | |
|---|---|---|
| Water | 750.0 cc | |
| Stannous Chloride | 5.0 grams | no longer carried |
| Water to make | 1.0 liter | |

### Solution II

| | | |
|---|---|---|
| Water | 750.0 cc | |
| Borax | 30.0 grams | (B301) |
| Calgon | 1.0 gram | (C150) |
| Water to make | 1.0 liter | |

Pre-soak transparencies 1-2 minutes before treatment. Immersion in Solution I turns transparencies red. Treat for approximately 1-2 minutes at 75°f in Solution I; rinse in running water for 2 minutes; then, immerse for 3 minutes in Solution II in which colors will be restored except magenta. Final wash 10 minutes in running water.

## RED BLEACH (Magenta & Yellow Reduction)

### Solution I

| | | |
|---|---|---|
| Water | 750.0 cc | |
| Sodium Bisulfate | 18.0 grams | (S390) |
| Water to make | 1.0 liter | |

### Solution II

| | | |
|---|---|---|
| Water | 750.0 cc | |
| Borax | 30.0 grams | (B301) |
| Calgon | 1.0 gram | (C150) |
| Water to make | 1.0 liter | |

Pre-soak transparencies 1-2 minutes. Treatment for 5 minutes in Solution I (75°f) will bring about a cc10C color change. After 2 minutes rinse, immerse transparencies in Solution II for 3 minutes. Wash for 10 minutes in running water.

CYAN BLEACH (for tungsten film)

| | | Dignan's Catalog No. |
|---|---|---|
| Water | 750.0 cc | |
| Calgon | 1.0 gram | (C150) |
| Sodium Carbonate, mono. | 4.0 grams | (S500) |
| 3% Hydrogen Peroxide | 50.0 cc | (not carried) |
| Water to make | 1000.0 cc | |

(for daylight film)

| | | |
|---|---|---|
| Acetoacetanilide | 8.0 grams | (not carried) |
| Sodium Carbonate, mono. | 4.0 grams | (S500) |
| Water to make | 1000.0 cc | |

Reduction corresponding to a cc10R filter is obtained in about 2 minutes (75°f). The degree of reduction can be controlled well. Wash films for 10 minutes (75°f) in running water.

TOTAL REDUCTION (leaving gelatine intact)

Solution I

| | | |
|---|---|---|
| Water | 750.0 cc | |
| Potassium Permanganate | 10.0 grams | (not carried) |
| Sodium Bisulfate | 52.0 grams | (S390) |
| Water to make | 1.0 liter | |

Solution II

| | | |
|---|---|---|
| Water | 750.0 cc | |
| Potassium Bisulfite | 50.0 grams | (not carried) |
| Water to make | 1.0 liter | |

Pre-soak transparencies for 1 minute in water of about 75°f. Then, immerse into Solution I for 30 seconds with agitation. Rinse well, and immerse in solution II with agitation until the stain formed in Solution I has disappeared. Then wash for 3 minutes.

Repeat two or three times until area treated is fully clear. Final rinse 15 minutes in running water. Caution: treatment in Solution I should not be longer than 30 seconds each time. If time limit is exceeded, a non-removable brown stain will form in the gelatine.

BUTTING CEMENT

Dichloromethane ($CH_2Cl_2$) is suitable for use as an adhesive in butt joining stripped Agfachrome.

# AGFACHROME DUPLICATING FILM

## Processing Data:

Agfachrome Duplicating film is a high resolution reversal film designed for making copies from color transparency originals. It is balanced for 5500°K. Processing is done by the user or custom laboratory. Agfa-Gevaert Processing Laboratory is not equipped to process Agfachrome Duplicating film.

## Specifications:

| | |
|---|---|
| Speed | 16 A.S.A. |
| Resolution | 130 lines/mm |
| Grain | Very fine |
| Sensitivity | Panchromatic |
| Film Base Thickness | 13mm |
| Availability | 35mm x 33 ft. |
| | 35mm x 100 ft. |
| | 35mm x 1000 ft. |

Agitation: During the first minute, remove film every 10 seconds - thereafter, every 30 seconds. Set nitrogen burst timer for burst duration of 12 seconds, interval between bursts 20 seconds. Nitrogen pressure should be sufficient to raise solution level at least 5/8 inch, and to give sufficient turbulence to avoid reel marks.

## AGFACHROME DUPLICATING FILM - TIME-TEMPERATURE PROCESSING CHART

| Processing Steps | Temp. (F) | Time |
|---|---|---|
| (In Total Darkness) | | |
| First Developer CU1 or CUS1* | 75 $\pm\frac{1}{2}$ | 2½ min. |
| Rinse | 73-77 | 10 sec. |
| Stop CU11 | 73-77 | 3 min. |
| (In Room Light) | | |
| Wash | 73-77 | 7 min. |
| Reversal Exposure - 15 sec. each side @ 500-Watt Lamp | | |
| Color Developer CU111 | 75 $\pm\frac{1}{2}$ | 7 min. |
| Wash | 73-77 | 14 min. |
| Bleach CUV | 73-77 | 4 min. |
| Wash | 73-77 | 4 min. |
| Fix CUV1 | 73-77 | 4 min. |
| Final Wash | 73-77 | 10 min. |
| Wetting Agent | 73-77 | ½ min. |
| Drying | 115 | |

*A softer gradation can be achieved by using CUS1 First Developer-Soft, instead of CU1 First Developer-Normal. Processing time - 2½ min. @75°f.

Summary of Agfachrome Processing:

1. First developer processing time, temperature, and agitation are most critical for the final result. Processing temperature is 75°F; time with fresh developer is 13 minutes. Check Time Compensation Chart, Illustration #1, and make time additions for aging of first developer in non-replenished system.

2. Rinse for 10 seconds; not longer than 20 seconds. A yellow stain will form in the clear areas if 20 seconds is exceeded.

3. Stop for 3 minutes. Agitate continuously during first minute.

4. Wash for 7 minutes in running water at flow rate of 3½ gal. per minute for 3½ gallon line. Use manual or air burst agitation.

5. Re-expose with 500W lamp for 30 seconds for each side at 3-ft. distance. Remove films from tanks and reels. Make sure the light is reaching the overlapping parts of the sheet film hangers. Re-exposure time exceeding 30 seconds does not affect the color balance.

6. Color developer time is 11 minutes at 75°F. No increase of time is necessary for increased exhaustion. Note precautions when handling color developers.

7. Wash in running water at a flow rate of 3½ gal./min. for 20 minutes. Dump water every 5 minutes. Use manual or air burst agitation. NOTE: Insufficient wash will result in magenta stain. These recommendations should be followed carefully.

8. Bleach for 4 minutes.

9. Wash with agitation in running water for 4 minutes.

10. Fix for 4 minutes.

11. Wash with agitation in running water for 7 minutes.

12. Stabilize 1 minute. Use 2cc wetting agent and 15cc 37% formaldehyde per 1000cc water.

13. Drying temperature should not exceed 115°F. If excessive curl occurs, due to low humidity in the drying cabinet, dry film in hangers. Wet film changes color balance slightly toward cyan when drying, therefore, ultimate color balance can be judged only when film is completely dry.

NOTICE: Agfachrome transparencies should be stored in cool, dry places.

Further details on the use and processing of Agfachrome Professional Color Reversal Sheet Films are given in the booklet, "Agfachrome Professional Sheet Film, A Guide for the User and Processor."

# DEVELOPING TIMES FOR RODINOL WITH KODAK'S TRI-X & PLUS-X FILM

## PLUS-X RODINAL - 68°

| LIGHT INTENSITY | CONTRAST | ASA | DILUTION | TIME-TEMP 68°F |
|---|---|---|---|---|
| Bright | Highest | 80 | 1:100 | 10½ min. |
| Bright | High | 125 | 1:100 | 11½ |
| Bright | Moderate | 160 | 1:75 | 11½ |
| Bright | Low | 400 | 1:50 | 12 |
| Dim | High | 400 | 1:75 | 12½ |
| Dim | Moderate | 400 | 1:50 | 13 |
| Dim | Low | 600 | 1:50 | 14 |
| Very dim | High | 800 | 1:75 | 15 |
| Very dim | Low | 800 | 1:50 | 16½ |
| Normal | Moderate | 200 | 1:85 | 12 (75°) |

## TRI-X RODINAL - 68°

| LIGHT INTENSITY | CONTRAST | ASA | DILUTION | TIME-TEMP 68°F |
|---|---|---|---|---|
| Bright | High | 250 | 1:85 | 14 min. |
| Bright | Moderate | 400 | 1:75 | 14½ |
| Bright | Low | 400 | 1:50 | 14½ |
| Dim | High | 600 | 1:75 | 15½ |
| Dim | Moderate | 800 | 1:50 | 16½ |
| Very dim | High | 1200 | 1:65 | 17½ |
| Very dim | Low | 1600 | 1:50 | 18½ |
| Very dim | High | 3200 | 1:65 | 20 |
| Very dim | Low | 6400 | 1:50 | 22½ |
| Available Light | Moderate | 800 | 1:100 | 17½ (75°) |